



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,242	12/15/2003	Yoichi Onosato	031296	2272
23850	7590	10/18/2005	EXAMINER	
ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP 1725 K STREET, NW SUITE 1000 WASHINGTON, DC 20006			VAN, LUAN V	
			ART UNIT	PAPER NUMBER
			1753	

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/734,242

Applicant(s)

ONOSATO, YOICHI

Examiner

Luan V. Van

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance: See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/15/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). Receipt is acknowledged of papers submitted, which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Bischel et al. and Han et al.

Regarding claim 1, Chen teaches a method for manufacturing a bare-fiber-metal-coated optical fiber having a bare fiber and a resin cover with which the peripheral surface of the bare fiber is covered except for part of the fiber-end side of the bare fiber; the bare fiber being exposed by removing the resin cover at the part of the fiber-end side thereof and being provided with a metallic coating on its peripheral surface excluding an end face portion of the bare fiber (column 2 lines 50-60); the method comprising: a subbing-layer formation step of forming, on the peripheral surface of the bare fiber having been exposed by removing the resin cover and on which the metallic coating has not been provided, metallic subbing layer consisting of an electroless plating layer with a thickness necessary for electrolytic plating, and an electrolytic plating layer (column 3 lines 43-65); and an end face treatment step of masking the end surface to shield the nickel deposition (column 2 lines 43-49), and subsequently removing the mask to expose the end surface (figure 1).

The difference between the reference to Chen and the instant claims is that the reference does not explicitly teach using a cleaver for the end face treatment step nor forming a subsequent surface layer.

Bischel et al. teach that "it is ... preferable that the end faces of the optical fibers be either anti-reflection coated or cleaved/polished at an angle such that the Fresnel reflection from the input fiber core facet is eliminated, or at least not coupled back into the waveguide in IO waveguide chip 215, from where it may be coupled back into the

Art Unit: 1753

emitters of diode laser array 210 resulting in power and/or wavelength instability in the laser output" (paragraph 104). An optical fiber cleaver would inherently be used for cleaving an optical fiber.

Furthermore, Han et al. teach that "it is desirable that multiple layers of metal coatings be used in order to assure adhesion of the metal coating to the fiber and assure that the desired physical and chemical characteristics are present on the surface of the metallic layer. Accordingly, the inventors coat the optical fibers of the present invention with an inner layer of an adhesion-promoting first metal, such as titanium, nickel or chromium, and an outer second metal layer, such as gold, platinum, aluminum or tungsten. Optionally, intermediate metal layers may exist between the inner and outer metal layers to enhance the adhesion of the outer layer to the inner layer....It is important that the outer layer of metal be a heat-resistant or oxidation-resistant metal, including metals which can form very thin and dense oxide layers which prevent further oxidation ... due to the temperatures to which the fiber-substrate combination is subjected in the presently claimed process. Significant oxidation of the metal layer would interfere with the electrostatic bonding process" (column 5 lines 16-40).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Chen by using a cleaver for treating the end surface as taught by Bischel et al., because cleaving the end surface allows light to be transmitted through the end face of the optical fiber, and also prevents

Art Unit: 1753

reflection of light back to the emitter. It would have been obvious to one having ordinary skill in the art to further modify the method of Chen by coating additional metal layers to form the surface layer as taught by Han et al., because coating multiple layers assures adhesion of the metal coating to the fiber and assures that the desired physical and chemical characteristics (such as oxidation resistance) are present on the surface of the metallic layer.

Regarding claim 3, Chen teaches forming an outer layer comprising of an electrolytic nickel plating layer and an electrolytic gold plating layer having been formed on the electrolytic nickel plating layer.

Regarding claim 5, Chen teaches a nickel and gold plating bath having the same composition as the instant invention. Therefore, the electrolytic nickel plating layer and the electrolytic gold plating layer are constituted of nickel and gold, respectively, each would have a purity of 99.9% or more.

Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Bischel et al. and Han et al., and further in view of Filas et al.

Chen, Bischel et al. and Han et al. teach the method as described above in addressing claims 1. Relevant to claim 2, Chen teaches an electroless nickel plating layer having a thickness of about 1.5 \pm 0.5 micrometer (column 4 lines 35-38), which is

Art Unit: 1753

within the range of the instant claim. Relevant to claim 4, Chen teaches an electrolytic nickel plating layer having a thickness of about 3.0 ± 1.5 micrometer (column 4 lines 35-38), which is within the range of the instant claim.

The difference between the references and the instant claims is that the references do not explicitly teach a gold layer having a thickness of $0.03\text{-}0.1\text{ }\mu\text{m}$ nor $0.05\text{-}1.0\text{ }\mu\text{m}$.

Filas et al. teach coating and optical fiber with a gold layer having a thickness of $0.1\text{-}1.0\text{ }\mu\text{m}$ (column 2 lines 46-50), which is within the range of the instant claims.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined method of Chen, Bischel et al. and Han et al. by using a gold layer having a thickness of $0.1\text{-}1.0\text{ }\mu\text{m}$ as taught by Filas et al., because such thickness is suitable for protecting the nickel layer from oxidation.

Conclusion

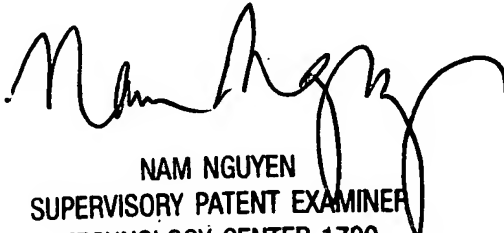
The prior art made of record and not relied upon is considered pertinent to the applicant's disclosure. Miller et al. and LaBrake et al. teach a similar optical fiber coating.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luan V. Van whose telephone number is 571-272-8521. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LVV
10/12/05



NAM NGUYEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700